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E. J. Millis
10-17-01

PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Application No.: 09,836,517
Filing Date: April 17, 2001
Applicant: Du
Title: Electric Motor Having Armature Coated
With A Thermally Conductive Plastic
Attorney Docket: 0275Y-000431CPA

Hon. Commissioner of Patents and Trademarks
Washington, D.C. 20231

INFORMATION DISCLOSURE STATEMENT

Sir:

Pursuant to 37 C.F.R. §§ 1.56, 1.97 and 1.98, Applicant hereby submits an Information Disclosure Statement for consideration by the Examiner.

I. LIST OF PATENTS, PUBLICATIONS, AND OTHER INFORMATION

The patents, publications and other information submitted for consideration by the Office (except unpublished U.S. patent applications) are listed on Form 1449 attached hereto.

II. COPIES

A. X Submitted herewith is a legible copy of (i) each U.S. patent application publication and U.S. and foreign patent; (ii) each publication or that portion which caused it to be listed; (iii) for each cited pending U.S. application, the application specification including the claims, and any drawing of the application which caused it to be listed including the claims directed to that portion; and (iv) all other information or that portion which caused it to be listed.

B. Any patents, publications or other information which are listed on Form 1449 or on the copies of PTO-892, but which are not enclosed herewith, were previously cited by or submitted to the PTO in one of the following applications which has been relied upon for an earlier filing date under 35 U.S.C. § 120:

U.S. Serial Number

U.S. Filing Date

C. This is a PCT application in the entry of the National Phase in the United States. A copy of the International Search Report is attached for the Examiner's

information. The documents listed on the International Search Report are listed on the attached Form-1449 for consideration by the Examiner and for listing on any patent resulting from this application. Since the International Search Report was from the US, EPO, or JPO search authorities, copies of these references should have been supplied to the USPTO under the trilateral agreement and are believed to be in the file of the above-identified application. (MPEP 1893.03(g))

III. CONCISE EXPLANATION OF THE RELEVANCE (check at least one box)

A. ☐ Except as may be indicated below in (B), all of the patents, publications or other information are in the English language (concise explanation not required).

B. ☒ A concise explanation of the relevance of each patent, publication or other information listed that is not in the English language is as follows (see 37 C.F.R. § 1.98(a)(3)):

1. ☐ See the attached foreign search report.
2. ☒ English translations are provided for:

German Patent No. 21 43 542

First published on March 8, 1973 describes a method for manufacturing an insulated armature for an electric power tool. In a first step a highly reactive resin is cast around the armature shaft and the lamination wherein simultaneously the commutator is fixed to the armature shaft. Thereafter the winding is generated and the correspondingly completed armature shaft is again inserted into a mould for casting highly reactive epoxide resin into the slots of the lamination stack and around the coil ends (10). Simultaneously a fan (11) is formed from such resin. It is stated that casting with a pressure of 3 to 4 kp/cm² on the resin compensates for shrinking material, so that air inclusions and non-uniform areas of insulating material within the slots and the coil ends are avoided whereas such problems may arise in injection moulding.

German Patent Application P 44 21 855.9

(Licentia Patent-Verwaltungs-GmbH, Germany) was filed on June 22, 1994 and published on January 4, 1996. It relates to a blower unit for an automobile comprising a radial fan simultaneously forming the armature of a DC motor. The radial fan (5) comprises a flange (17) to which blades are connected which are formed by injection moulding together with the flange. Into the flange magnets of the motor are inserted. The publication discloses forming of an armature (4) including the necessary permanent magnets and a radial fan (5) by injection moulding in one step.

German Patent Application P 44 30 073.5

(Robert Bosch GmbH, Germany), filed on August 25, 1994 and published on February 29, 1996, relates to an electric machine with a claw-pole armature and, therefore, to a machine different from the one of interest. According to the description of embodiment, the claw-pole armature (40) carrying the elements as shown in Figure 3, i.e., winding (30), pole discs (46, 48) with pole fingers (56, 58), collecting rings (62, 64) etc., is positioned into an injection mould and a cover section (70 in Figure 4) is formed so that fan vanes (20) are generated which are forming one piece with the winding carrier (10).

German Patent Application 195 09 835.8

Published on October 19, 1995, describes an electric motor having an armature (5) with a winding (5a) formed in one piece with a rotatable disc (4). The outer part of the armature is formed by an element (7) of synthetic resin which contains Mica powder to improve heat conductivity.

German Utility Model No. 80 21 477

Published on April 30, 1981 and describes a claw-pole motor having an armature with a fan (2) formed in one piece with a pinion (6) on the armature shaft by injection moulding of plastic material.

German Utility Model No. 298 21 564

(Impella Cardiotechnik AG, Germany) was filed on December 2, 1998 and published on August 17, 2000. It relates to an electric motor having a motor housing (20) which encloses the stator (24) and is formed of a polymeric material. According to the characterizing part of claim 1, the polymeric material of the motor housing (20) comprises a heat conductive, electrically insulating filler. According to the description and dependent claim 4, the stator windings may be embedded into such polymeric material.

European Patent Application 89107829.7

Published on December 6, 1989, describes a spindle including electric drive means for a spinning machine. The stator (15) of the electric drive comprises a laminate stack (16) with windings (17) inserted into slots thereof. By filling the space between the end inserts (25, 26) with a plastic material which contains particles to increase heat conductivity, a body (29) is formed.

European Patent No. 0 532 526

(Robert Bosch GmbH, Germany), which claims priority of German Patent Application P 40 18 089 of June 6, 1990 and was first published on December 12, 1991, relates to a method for producing an electrical machine which comprises two stacks of stator laminations. As described, a pressing tool (42) is used which comprises an inner annular wall (48) and an outer annular wall (46) and which receives the two stacks of stator lamination (28, 29) including spacing means (35). Into this pressing tool a thermally conductive plastic material is pressed in soft condition.

European Patent No. 0 553 831

(Ebara Corporation, Japan) claims priority of Japanese Application 36926/92 of January 29, 1992 and was first published on August 4, 1993. It relates to a thermotropic liquid crystal polymer composition, to a method for preparing such composition for injection moulding, an electric insulator, a method for preparing an electrical insulator, a resin moulded stator for electric machines or appliances and a method for preparing such a stator.

European Patent No. 0 819 332

(E. I. DuPont De Nemours & Company et al., U.S.A.), claiming priority of USSN 415,639 of April 3, 1995 and first published on October 10, 1996, relates to an injection moulded motor assembly and a method for manufacturing a motor assembly wherein injection moulding is applied to part of the stator but not to the armature.

Japan Patent No. PO Hei07-123642

To provide a series motor whose armature wires are protected securely and the temperature rise of the armature can be reduced.

Construction;

A core 14 on which magnet wires are wound and both coil ends 15 are covered with molding resin and fans 20 are made from molding resin at and both coil ends 15 in one unit.

Japan Patent No. PO Sho53-09800

This invention relates to a manufacturing method of cooling fans for electric rotating machines.

In general, for electric rotating machines are cooled by air cooling caused by the wind from fans on armatures. Conventionally, fans are separately made with mould or press mould and then attached to armature shaft using attaching hubs. However, this prior art has the following drawbacks:

First, it requires many manufacturing steps such as making fans, attaching, housing. Second, metal material like steel for fan attaching hubs and fans increases weight of the armature. Third, armature shaft should be longer by the length of the attaching hubs on the armature shaft, to which fans are attached.

This invention is for eliminating drawbacks on the above prior arts features; during impregnation process (varnishing) of magnet wires, removable mould are attached to the end of armature and fans are made by hardened impregnation material at the same time of the impregnation process.

3. ___ Other:

C. ___ The following additional information is provided for the Examiner's consideration.

IV. CROSS REFERENCE TO RELATED APPLICATION(S)

A. X The Examiner is advised that the following co-pending application(s) contain(s) subject matter that may be related to the present application. By bringing this(these) application(s) to the Examiner's attention, Applicant(s) does(do) not waive the confidentiality provisions of 35 U.S.C. § 122.

<u>Serial No.</u>	<u>Filing Date</u>	<u>Art Unit</u>
09/756,959	1/9/01	Not assigned

V. THIS IDS IS BEING FILED UNDER

A. X 37 C.F.R. § 1.97(b): (check only one box)

1. ___ within three months of the filing date of a national application other than a continued prosecution application under § 1.53(d) (37 C.F.R. § 1.97(b)(1)). No fee or certification is required.

2. ___ within three months of the date of entry of the national stage as set forth in §1.491 in an international application (37 C.F.R. § 1.97(b)(2)). No fee or certification is required.

3. X before the mailing of a first Office Action on the merits (37 C.F.R. § 1.97(b)(3)). No fee or certification is required. In the event that a first Office Action on the merits has been issued, please consider this IDS under 37 C.F.R. § 1.97(c) and see the certification under 37 C.F.R. § 1.97(e) below; or, if no certification has been made, charge our deposit

account a fee in the amount of \$180.00 as required by 37 C.F.R. § 1.17(p).

4. ____ before the mailing of a first Office Action after the filing of a request for continued examination under 37 C.F.R. § 1.114. No fee or certification is required.

B. ____ 37 C.F.R. § 1.97(c): (check only one box)

• before the mailing date of either any Final Office Action under 37 C.F.R. § 1.113, a Notice of Allowance under 37 C.F.R. § 1.311, or an action that otherwise closes prosecution.

1. ____ No certification; therefore, a fee in the amount of \$180.00 is required by 37 C.F.R. § 1.17(p).

2. ____ See the certification below. No fee is required.

C. ____ 37 C.F.R. § 1.97(d):

• after the mailing date of either a Final Office Action under 37 C.F.R. § 1.113 or a Notice of Allowance under 37 C.F.R. § 1.311, yet on or before payment of the issue fee.

1. ____ See the certification below. A fee in the amount of \$180.00 is required by 37 C.F.R. § 1.17(p).

VI. CERTIFICATION UNDER 37 C.F.R. § 1.97(e): (check only one box)

The undersigned hereby certifies that:

A. ____ each item of information contained in this IDS was first cited in a communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of this IDS (See 37 C.F.R. § 1.97(e)(1)); or

B. ____ no item of information contained in this IDS was cited in a communication from a foreign patent office in a counterpart foreign application, and, to the knowledge of the undersigned after making reasonable inquiry, no item of information contained in this IDS was known to any individual designated in 37 C.F.R. § 1.56(c) more than three months prior to the filing of this IDS (See 37 C.F.R. § 1.97(e)(2)).

C. ____ Some of the items of information were first cited in a communication from a foreign patent office. As to this information, the undersigned hereby certifies that each item of information contained in this IDS was cited in a communication

from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of this IDS. As to the remaining information, the undersigned hereby certifies that no item of this remaining information contained in this IDS was cited in a communication from a foreign patent office in a counterpart foreign application, and, to the knowledge of the undersigned after making reasonable inquiry, no item of information contained in this IDS was known to any individual designated in 37 C.F.R. § 1.56(c) more than three months prior to the filing of this IDS.

VII. PAYMENT OF FEES (check only one box)

A. ☐ A check in the amount of \$180.00 is enclosed for the above-identified fee.

B. ☐ Please charge Deposit Account No. 08-0750 in the amount of \$180.00 for the above-indicated fee. A duplicate copy of this paper is attached.

Please charge any additional fees or credit any overpayment pursuant to 37 C.F.R. § 1.16 or § 1.17 to Deposit Account No. 08-0750.

REMARKS

It is Applicants' opinion that the claims presently on file are patentably distinct over the cited references whether considered either singly or in combination with any other reference.

The attached references are being cited without any admission that they constitute statutory prior art or contain matter which anticipates the invention, or which would render same obvious, either singly or in any combination, to a person of ordinary skills in the art.



Respectfully submitted,

Dated: July 30, 2001

By: Mark D. Elchuk

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HDP/SB/21 based on PTO/SB/21 (08-00)

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U.S. PATENT & TRADEMARK OFFICE

TRANSMITTAL
FORM

(to be used for all correspondence after initial filing)

TRANSMITTAL FORM (to be used for all correspondence after initial filing)	Application Number	09/836,517
	Filing Date	4/17/01
	First Named Inventor	Du
	Group Art Unit	
	Examiner Name	
Total Number of Pages in This Submission	Attorney Docket Number	0275Y-000431CPA

ENCLOSURES (check all that apply)

☐ Fee Transmittal Form☐ Fee Attached☐ Amendment / Response☐ After Final☐ Affidavits/declaration(s)☐ Extension of Time Request☐ Express Abandonment Request☒ Information Disclosure Statement☐ Certified Copy of Priority Document(s)☐ Response to Missing Parts/
Incomplete Application☐ Response to Missing
Parts under 37 CFR
1.52 or 1.53☐ Assignment Papers
(for an Application)☐ Drawing(s)☐ Licensing-related Papers☐ Petition☐ Petition to Convert to a
Provisional Application☐ Power of Attorney, Revocation
Change of Correspondence Address☐ Terminal Disclaimer☐ Request for Refund☐ CD, Number of CD(s)☐ After Allowance Communication to
Group☐ Appeal Communication to Board of
Appeals and Interferences☐ Appeal Communication to Group
(Appeal Notice, Brief, Reply Brief)☐ Proprietary Information☐ Status Letter☒ Other Enclosure(s)
(please identify below):Form HDP 1449 and copies of
references cited therein (16 US,
13 Foreign) and return-receipt
postcard.

Remarks

The Commissioner is hereby authorized to charge any
additional fees that may be required under 37 CFR 1.16 or 1.17
to Deposit Account No. 08-0750. A duplicate copy of this
sheet is enclosed.

SIGNATURE OF APPLICANT, ATTORNEY, OR AGENT

Firm or Individual name	Harness, Dickey & Pierce, P.L.C.	Attorney Name Mark D. Elchuk	Reg. No. 33686
Signature	<i>Mark D. Elchuk</i>		
Date	<i>July 30, 2001</i>		

CERTIFICATE OF MAILING/TRANSMISSION

I hereby certify that this correspondence is being deposited with the United States Postal Service as first class mail in an envelope addressed to: Commissioner of Patents and Trademarks, Washington, D.C. 20231, or facsimile transmitted to the U.S. Patent and Trademark Office on the date indicated below.

Typed or printed name	MARK D. ELCHUK		
Signature	<i>Mark D. Elchuk</i>	Date	<i>July 30, 2001</i>